DETAILED ACTION

1. The papers submitted on 24 May 2011, amending claims 2, 3, 6, 10-12, 14 and the specification, canceling claims 1 and 4, and adding claim 20, are acknowledged.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 May 2011 has been entered.

Specification

3. The amendment filed 24 May 2011 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

4. The amendments to paragraph 16. Specifically, the amendment changes the order of forming the polyolefin pellet, whereby rather than compressing and cutting with a cutter having an acute angle, the newly proposed language would support compressing with a cutter having an acute angle, and cutting, but not requiring cutting with the cutter.

5. Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 3 and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. In claim 3, line 4, and in claim 30, lines 7-8, the limitation "compressing the rod of polyolefin in a molten state to a thickness of 0.3 mm or more;" is not support by the originally filed or amended disclosure. Specifically, the originally filed specification, at ¶ 16, states that:

> [0016] Further, the polyolefin pellet that can be cross-linked and foamed, used in the present invention, is produced by extruding polyolefin that can be cross-linked and foamed into a rod with the size of 2 to 10 mm in diameter, providing a 0.5 to 5 mm thick plastic covering on the surface of the rod, compressing and cutting the rod with the covering in a molten state with a cutter having an end of an acute angle enabling both ends of the plastic to be joined in a manner that the joined section being 0.3 mm or greater, more preferably, within a range from 0.3 to 3.0 mm, in thickness.

The only support for a compression step is to render the joined section of the *plastic coating* to have a thickness of 0.3 mm or more, not the entire rod, as instantly claimed.

9. Acceptable claim language could read, "compressing the rod of polyolefin in a molten state to a thickness of plastic in a bonded region of 0.3 mm or more."

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 2, 6-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiina et al. (EP 0 698 464) in view of in view of Shiina et al. (US 3,987,134).

14. Regarding claim 2, Shiina a process for producing a foam composite having a skin with an even thickness, and a core comprising foamed bodies with homogeneous and fine bubbles and plastic reinforcing members with an even thickness covering each of the foamed bodies **(title/abstract)** with the steps of: charging a mold with minute plastic powders/particles and polyolefin pellets that are larger than the powders/particles, wherein the polyolefin pellets are covered in a portion or in the whole surface with plastic **(9:4-15)**; heating the mold from the outside of the mold; rotating the mold at 1 to 2 rpm, so that a plastic skin is formed and the pellets adhere to the skin; and further heating the mold, to permit the polyolefin to cross-link and the pellets to expand by the decomposition of a foaming agent and wherein a number of the foamed bodies which are bonded each to each other constitute the core are from the polyolefin pellets (**14:16-23:15, Examples 1-11**), wherein a skin thickness of 0.5 to 10 mm **(see col. 7 ll. 38-40)**, a foam density of 0.1 to 0.01 g/cc **(see col. 9 l. 46 and col. 14 l. 47)** a molded article thickness, i.e. diameter, of 1 to 100 mm **(see col. 7 ll. 6-7)**, and therefore a core thickness of 0.5 to 99.5 mm. Additionally, Shiina discloses that the polyolefin pellets are formed as a rod of polyolefin which is covered with plastic, compressed and cut **(see col. 9 ll. 4-15)**; and when foaming the pellets form even size granular foamed bodies with a covering of a reinforcing member with practically even thickness and are integrated, bonded mutually, filling in the core, and bonded to the skin **(see col. 22 l. 56 to col. 23 l. 15)**.

15. Shiina et al. (EP 0 698 464 A2) does not appear to expressly disclose that the edge section are bonded or the shape of the reinforcing members, the diameter of the foamed bodies or that the plastic coating is cross-linkable and foamable.

16. However, Shiina et al. (US 3,987,134) discloses a method of producing foamed articles in substantially the same manner as Shiina et al. (EP 0 698 464 A2), wherein the compression cutting seals the internal material **(see col. 3 ll. 62-68)**. Additionally, Shiina discloses an embodiment in which the coating contains crosslinking a foaming agents **(2:64-68, 5:11-15)** and the bodies are expanded spherically to less than three times there original size **(4:30-35)**, which corresponds to a bodies size within the claimed range, based on pellets having diameters of 5 mm **(10:29-46)**. Further Shiina et al. (US 3,987,134) discloses belt, string and solid shaped reinforcements intermingled with the foamed bodies **(see fig. 5-8)**.

17. At the time of invention, it would have been *prima facie* obvious to one of ordinary skill in the art to modify the method of Shiina et al. (EP 0 698 464 A2) to include the sealing of Shiina et al. (US 3,987,134), because this would allow for the formation of desirable shaped continuous internal reinforcements having reinforcement structure thickness of 0.3 to 10 mm as disclosed by Shiina (US 3,987,134) **(see col. 3 ll. 34-36)**.

18. Regarding claim 6, Shiina discloses that the powder contains 1 PHR azodicarbon amide, a foaming agent **(see col. 22 ll. 44-45)**.

19. Regarding claim 7, Shiina (US 3,987,134) discloses that the plastic covering, i.e. the reinforcement forming portion, of the polyolefin pellets contains a foaming agent in an amount of 2 PHR **(see col. 4 ll. 40-44 and col. 8 l. 63 to col. 9 l. 30)**.

20. Regarding claim 10 , Shiina discloses that the wherein the plastic powders is high density polyethylene **(see col. 22 ll. 46)**.

21. Regarding claim 12, Shiina discloses adding a flame retardant **(see col. 11 ll. 8-15)**.

22. Regarding claim 14, Shiina discloses the powder is HDPE and contains 2 PHR organic peroxide **(see col. 18 ll. 13-14)**.

23. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiina et al. (EP 0 698 464 A2) in view of Shiina et al. (US 3,987,134) as applied to claim 2 above, further in view of Lammers (US 3,773,875)

24. Shiina does not appear to expressly disclose forming the foam to contain metal fittings strongly secured to the reinforcing members.

25. However, Lammers discloses a method of forming a foamed article **(see title/abstract)** in which metal fittings are embedded into the foamed body **(see abstract and col. 1 l. 71 to col. 2 l. 43)**

26. At the time of invention, it would have been *prima facie* obvious to one of ordinary skill in the art to modify the method of Shiina to include the metal fittings of Lammers, in order to allow for attachment means to be embedded securely within the foam article.

Response to Arguments

27. Applicant's arguments, see pp. 9-10, filed 24 May 2011, with respect to claims 2, 3, 6-14 and 30 have been fully considered and not are persuasive.

28. Applicant argues that Shiina EP and Shiina US do not provide polyolefin pellets covered in the whole surface with plastic. However, as discussed above Shiina US discloses sealing the extruded material coating by compression **(3:62-68)** and it would have been *prima facie* obvious to modified the method of Shiina EP to include such sealed coatings, thus forming a foamable pellet covered in its whole surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN SCHIFFMAN whose telephone number is (571)270-7626. The examiner can normally be reached on Monday through Thursday from 9AM until 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHRISTINA JOHNSON can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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